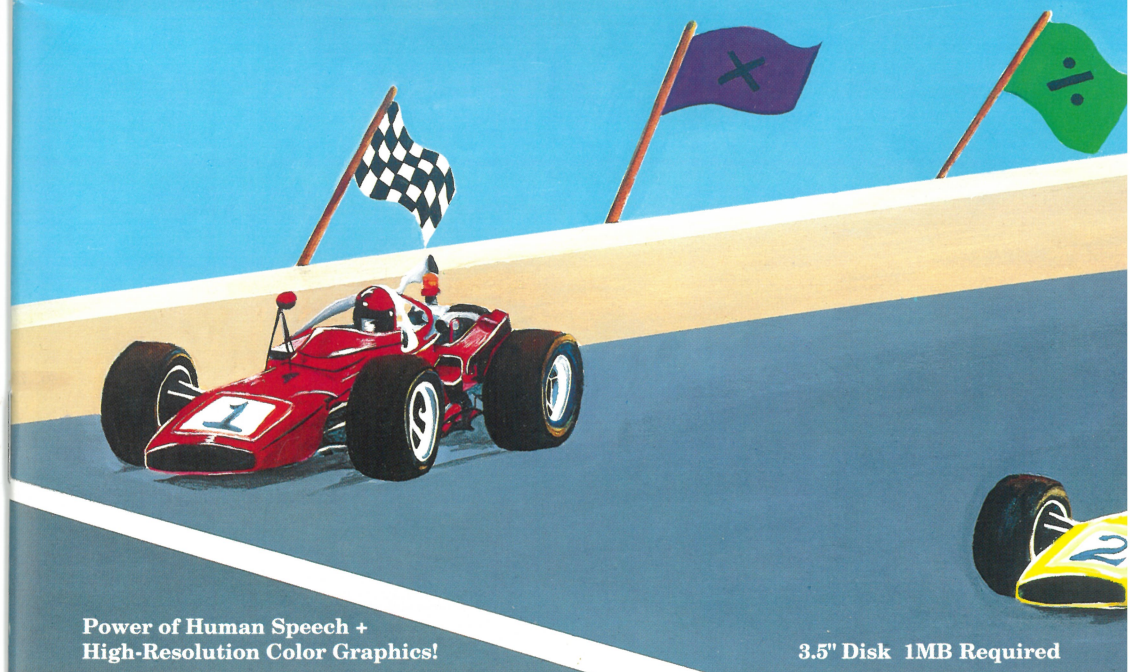
The TALKING SCHOOLHOUSE™ SERIES

Real Human Speech
That Teaches Basic Skills

Apple® IIGS
3.5″ Disk

Ages
8-11

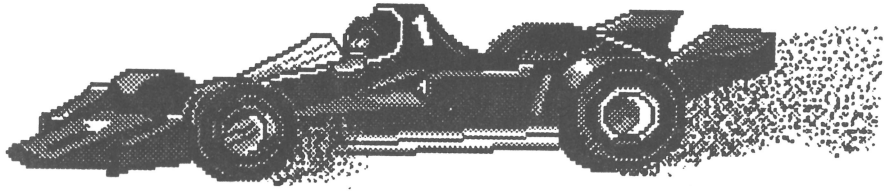
TALKING MULTIPLICATION & DIVISION



Power of Human Speech +
High-Resolution Color Graphics!

3.5" Disk 1MB Required

TALKING MULTIPLICATION & DIVISION



This series consists of five parts on two 3.5" disks:

Talking Table Machine Facts and Factors
Dividing Machine Solving Word Problems Banker's Run

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The Talking Schoolhouse™ Series

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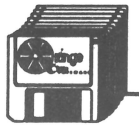


Getting Started

Welcome to **Talking Multiplication and Division.** This program is on two 3.5" disks. It requires 1MB minimum memory and may be run from the floppy disks or installed on a hard drive. The use of a mouse with this program is strongly recommended, although it is possible to use keyboard equivalents with IBM and Tandy versions.

The following instructions are for experienced users who need only the specific file name, etc. to begin running this program. More detailed instructions concerning loading, installing on a hard drive, and volume control appear on the following pages.

Apple IIGS: Insert the **Talking Multiplication and Division Boot Disk** into the drive and turn on your computer and monitor. The program will boot automatically, asking you to insert the **Program Disk** when necessary. Adjust the volume by clicking on the box marked *Sound* found in each section of the program. Click on *Quit* to exit a section.

Tandy: If you have a mouse, install it before booting this program. To run the program, insert the **Talking Multiplication and Division Disk 1** into drive A. At the **A>** prompt, type ***Start*** then press ***Enter***. Switch to the **Talking Multiplication and Division Disk 2** when prompted to do so. Adjust the volume by turning the volume knob located on the side or back of your computer.

IBM: If you have a mouse, install it before booting this program. Connect your Covox Speech Adapter and turn it on. Insert the **Talking Multiplication and Division Disk 1** into drive A. At the **A>** prompt, type ***Start*** then press ***Enter***. Switch to the **Talking Multiplication and Division Disk 2** when prompted to do so. Adjust the volume by turning the dial on the Covox unit.

BOOTING THE PROGRAM

Apple IIGS: Insert the Boot Disk into the drive, label side up, then turn on your computer and monitor. The program will boot automatically. To reboot at any point, press the Control/Apple/Reset keys simultaneously, then release.

Tandy: Running the program from MS-DOS

1. Insert your DOS disk into the drive and turn on your computer and monitor.
2. You should see the A> prompt on your screen. If not, switch to drive A by typing *A:* and pressing the ***Enter*** key.
3. If you plan to use the keyboard to input information, go to step #4. If you have a mouse, you must install the mouse driver at this point if you have not already done so. Do so by typing ***Mouse*** and pressing the ***Enter*** key.
4. When the A> prompt reappears, remove your DOSdisk and insert the **Talking Multiplication & Division Disk 1.** Type *Start* and press ***Enter*** to load the program. Insert the **Talking Multiplication & Division Disk II** when prompted.

Tandy: Running the Program from DeskMate™

1. If you will *not* be using a mouse, proceed to step #2. If you do have a mouse, you must first install the mouse driver. Your mouse may currently work with the DeskMate interface, but it will not work with **Talking Multiplication & Division** unless you first install the mouse as follows:

   A. Exit the DeskMate screen by pressing the ***ESC*** key. A dialog box will appear asking you to confirm your choice. Press ***Enter***. You should then see the ***A>*** prompt.

   B. Type ***Mouse*** and press ***Enter***. You should see a message on the screen stating that the mouse has been installed.

   C. When the ***A:>*** prompt reappears, type ***C:Desk*** to return to DeskMate.

2. The middle of the top line of DeskMate's main screen should read *DeskMate A:*. If so, proceed to step #3. If it does not, you must change the directory. Choose the directory option by pressing the function key *f3* or by clicking your mouse on the *Directory* button. A pull-down menu will appear under that. Choose the *Change* option by typing *C* and pressing ***Enter*** or by double-clicking on the *Change* option. A DeskMate dialog box should appear displaying the current directory name. Type *A:* followed by the ***Enter*** key.

3. Insert the **Talking Multiplication & Division Disk I** into Drive A.

4. Select the "File" option from the DeskMate menu by pressing the *f2* key or by clicking the mouse on the "File" button in the upper lefthand corner of the screen.

5. A pull-down menu will appear. Choose the "Run" option by pressing ***R*** and the ***Enter*** key, or by clicking the mouse on "Run."

6. A DeskMate dialog box will appear in the middle of the screen. Type ***Start*** for the name of the program, then press the ***Enter*** key. Do not type anything in the "data file" field and do not change the speed setting. The computer should be running at fast speed for this program. The program should now be running.

IBM

1. Install the mouse and Covox unit (see Covox instructions).

2. Boot your machine with MS-DOS in one of the following ways:

   A. If MS-DOS is resident on your hard drive, simply turn on your computer and monitor. You should receive the DOS prompt C>.

   B. Insert your DOS System Disk into Drive A and turn the power on. You should receive the DOS prompt A> shortly.

3. If you do not have a hard drive, and will be using a mouse, install the mouse driver now by typing ***Mouse*** and pressing the ***Enter*** key.

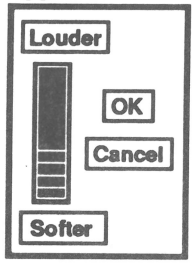
4. Remove the DOS disk (if necessary) and insert the **Talking Multiplication & Division Disk I.** Type ***A:*** then press ***Enter***.

5. You should now see the DOS prompt A> indicating that a disk is in Drive A. If the error message "Not ready reading Drive A" arises, the disk is not in Drive A. Type *f* for fail and return to step #3, specifying a drive other than drive A.

6. Type ***Start*** and press the ***Enter*** key to begin running the program.

VOLUME CONTROL

Apple IIGS: In every section of the program you will see a box marked *Sound*. Click the mouse within that box. A dialog box will appear, similar to that shown to the left. Click on *Louder* to raise the volume or *Softer* to lower the volume. You will hear a sample tone. When the volume is set to your satisfaction, click within the *OK* box.



IBM: Volume is controlled by turning the dial on your Covox adapter. To test the volume from the Main Menu, type *S* or click the mouse on the box marked *Sound*. Click to hear a sample tone.

Tandy: Volume is controlled by a knob on the back or lower lefthand side of your computer. Turn the knob clockwise to increase the volume, counterclockwise to decrease the volume.

KEYBOARD EQUIVALENTS FOR MOUSE SELECTIONS

IBM & Tandy: To select options from pull-down menus, type the first letter of the option you desire – *I* for Instructions, *S* for Sound, *Q* to Quit, etc. To exit these dialog boxes when finished, type *C* to continue. Use the arrow keys to move the cursor around activity boards, and the ***Enter*** key to select. Refer to the on-screen instructions for keyboard commands specific to a given section of the program.

COVOX INSTRUCTIONS

Sound Equipment List:

1. Covox "Speech Thing"
2. Covox "Booster Speaker System"
3. One 9V battery *or* an external 9V dc power supply.

Assembly:

1. Carefully insert the male end of the Covox "Speech Thing" into the printer port at the rear of the IBM PS/2. If so desired, a printer cable may be attached to the other (female) end of the "Speech Thing," thus enabling the printer.

2. Insert the plug located at the end of the Speech Thing's wire into the terminal on the back of the speaker marked *Input*.

3. Provide power to the speaker using one of the following methods:

   A. Insert a 9V battery into the speaker under the removable plate at the back of the speaker.

   B. Plug an external 9V battery into the terminal at the back of the speaker marked *DC in 9V*, and plug the power supply into a wall socket.

4. Turn the speaker on by turning the knob at the front of the speaker unit.

5. Adjust the volume on the speaker unit by turning the knob on the front of the speaker unit.

INSTALLING THIS PROGRAM ON A HARD DRIVE

IBM & Tandy: **Talking Multiplication & Division** will run much more quickly from a hard drive than from a floppy drive.

1. To install **Talking Multiplication & Division** on your hard drive, you must first be sure that you are either in the MS-DOS subdirectory or that the MS-DOS subdirectory is one of the default paths. Consult your DOS manual for further information. For setting default paths, look under the "path" command.

2. Decide on a pathname under which you will install your software. If you are confused as to which pathname to use, try C:\MULTDIV or a similar name that helps you to readily identify the program. *Do not install this program in the same directory with any other programs from Orange cherry or in any directory containing a file named "START.EXE" in it, as the installation will destroy this file. Do not use an existing directory; the installation program below will place the program in a directory of its own.*

3. Insert the **Talking Multiplication & Division Disk I** into Drive A. Type ***a:installh<pathname>*** then press the ***Enter*** key. For example, using the pathname we suggested, type ***a:installhc:\multdiv*** then ***Enter***. This will properly install **Talking Multiplication & Division**. Do not add a backslash or anything else after the pathname, as doing so may trigger errors in installation.

Apple IIGS: Installing this Program on a Hard Drive

1. Create a new folder on your hard disk by selcting "New Folder" from "File" on the desktop. Give the folder a name. In these instructions we will name the folder **Schoolhouse** and refer to it as such.

2. Insert the **Boot Disk** (or the only disk in a single-disk program) into your floppy drive and open it by double-clicking the mouse on the disk icon labeled **OC.BOOT.DISK** that appears on the desktop when the disk is inserted.

3. Use the mouse to click on, or select, all files named **Program** (eg: Program 1, Program B, etc.) as well as all files named **Data** (eg: Data 1, Data 2, etc).

4. Copy these files into the **Schoolhouse** folder. Do this by clicking the mouse on each file icon, holding down the mouse button, then dragging the highlighted file icons to the folder. Release the mouse button when the pointer is over the folder and both the file(s) and **Schoolhouse** folder are highlighted.

5. When the computer finishes copying these files, remove the **Boot Disk** and insert the **Program Disk** (if necessary) into the drive.

6. Open the **Program Disk** by double-clicking the mouse on the icon marked **OC.Prog.Disk**. As in step #3, copy all files marked **Program** and **Data** into your **Schoolhouse** folder. You may then remove the **Program Disk** from the drive.

7. To launch the program from your hard disk, open the **Schoolhouse** folder, then double-click on the application marked **Program**.

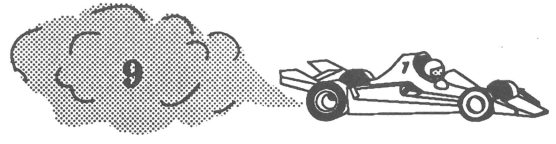
8. If you have other programs you wish to install on your hard disk, follow the same procedure, but be sure you create a separate new folder for each program.

Overview

Talking Multiplication and Division is a five-part program on two 3.5" disks. It requires 1 MB minimum memory. **Talking Multiplication and Division** is designed for children ages eight to eleven who are ready to learn the tables 1-12, with 144 as the highest product. It is also an excellent tool when used for practice and skill reinforcement with children who already know the basics. Students apply math facts and theory to a variety of practice exercises that maintain interest through colorful graphics, animation, human voice, and a variety of levels and engaging activities.

Talking Multiplication and Division offers an interactive format in which children may learn the math tables and see the relationship among numbers. A friendly human voice helps children use multiplication and division and guides them through the program. Students practice their newly acquired multiplication and division skills in a wide variety of contexts. They solve word problems, are asked to supply missing factors and divisors to uncover puzzles, and negotiate a maze by solving equations that unlock doors in a math bank vault. All exercises provide a thorough drill, yet children have fun when they learn using this creative, challenging program format.

Students receive immediate, constructive feedback and may progress at their own pace. Digitized sound, high-resolution graphics, and animation reward students for their efforts. In the word problem section, the problems are randomly generated, and different numbers are inserted each time the program is run, so children may use the program again and again without becoming bored. Similarly, the ***Banker's Run*** section offers a new maze each time it is used, presenting a fresh challenge to students.



Learning Objectives

Conceptual Objectives

Through the use of this program, children will develop an understanding of the relationship of numbers in equations requiring the operations of multiplication and division. The entire concept of a numerical sentence, or equation, will be reinforced as children learn to read such equations and supply missing factors. The **Talking Table Machine** allows children to grasp the concept of quantity as never before. The multimedia presentation allows students to hear the numbers and equations read aloud as they see the written numerals, pictures of the total quantity as an amount of objects, and a bar graph readout that shows how the table grows proportionately. The concept of cause and effect is reinforced by the immediate response children receive for their input.

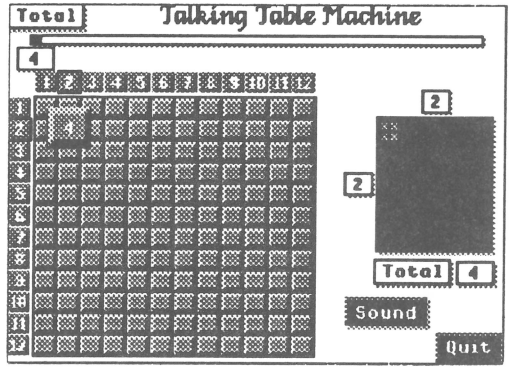
Skill Objectives

Youngsters will learn to multiply and divide in a variety of formats, including word problems. They can learn or review the multiplication tables (1-12) at their own pace and apply this information to other activities in the program. The **Dividing Machine** offers similar instruction and review. Children will develop the ability to solve incomplete equations by supplying missing factors or divisors. Students are also exposed to two-step problem solving in the **Solving Word Problems** section. After reading each problem, children must first decide whether they will need to multiply or divide in order to correctly solve the problem. They then go on to extract the necessary information to form an equation and solve the problem. Fine motor skills and eye-hand coordination are also enhanced.

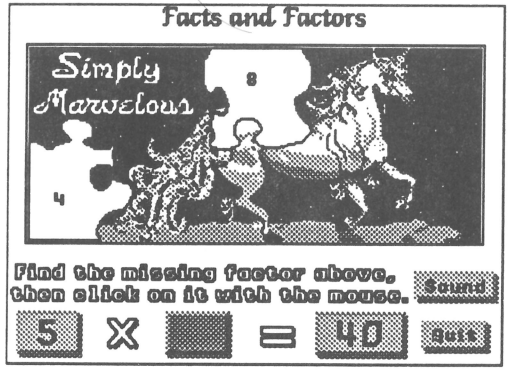
Affective Objectives

Immediate positive feedback in the form of human voice, sound effects, and reward animations bolsters children's feelings of confidence and accomplishment. Students learn at their own pace as they have full control over the speed that the program progresses and may review or omit sections as appropriate to their level.

Program Description



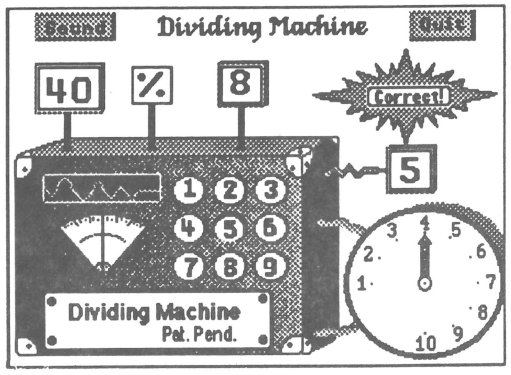
The **Talking Table Machine** presents a 144-tile grid bordered on the top and left side by the numbers 1-12. By clicking the mouse on any number on the side of the screen, the sound of that number will be heard followed by the word "times." If the user then clicks on a number on the top row, the second factor in the equation is produced and the total is seen and heard. In accordance with the commutative property of multiplication, the same results occur if the user clicks on the top number first, then the side. The product may also be obtained by clicking the mouse on any two squares within the grid. The total is spoken aloud and shown, both as a written numeral and as a graphic, proportional quantity of objects. Users may exit at any time by clicking on the *Quit* button, which returns them to the menu.

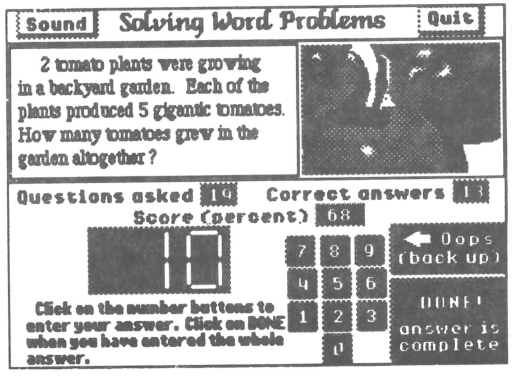


Facts and Factors gives students an opportunity to find the missing factor by clicking on the puzzle piece with the correct number in the equation. When a question is answered correctly, a section of the mystery is revealed. When the entire picture is revealed, another reward screen congratulates the student for getting all answers correct. There are five different puzzles and quizzes are randomized.

Program Description

The Dividing Machine creates randomly generated division problems that pop out of the machine for children to view while the equation is read aloud. Children input their answer by clicking the mouse on the appropriate numerical buttons on the front of the machine. If the correct number is chosen, children see and hear the word "correct" and proceed to the next question. If the answer is incorrect, the user hears "Please try again." Ten problems are presented each time the section is run. A dial on the machine shows the student how many questions are left, and a score is given at the end. Clicking on *Quit* returns users to the menu.



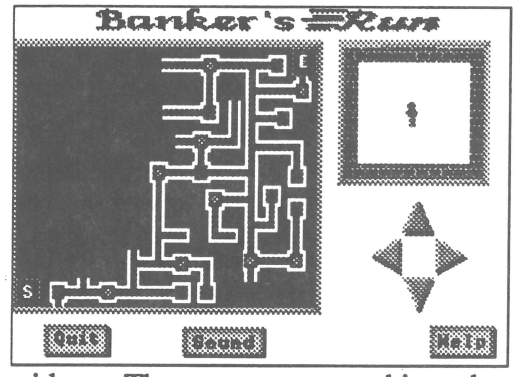

Sound
Solving Word Problems
Quit
2 tomato plants were growing in a backyard garden. Each of the plants produced 5 gigantic tomatoes. How many tomatoes grew in the garden altogether?
Questions asked 10
Correct answers 13
Score (percent) 68
7 8 9
4 5 6
1 2 3
0
Oops (back up)
DONE! answer is complete
Click on the number buttons to enter your answer. Click on DONE when you have entered the whole answer.

Solving Word Problems presents written dilemmas that test student's newly aquired math skills. Children must first decide whether the problem must be solved using multiplication or division. Once the correct operation has been determined, kids solve the problem and answer by clicking the correct numerical buttons on the screen. The *Oops* button erases, and kids click on *Done* when they feel the answer is correct. Immediate feedback and a score are given.

Program Description

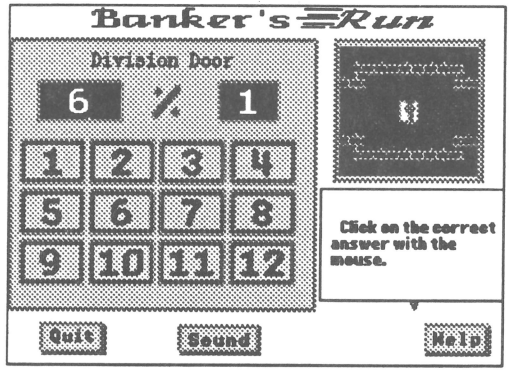
Banker's Run is a lively math game that challenges young students as it tests their developing math skills. After choosing this section, the submenu below is presented to the user:

1. **Introduction**
2. **Change Difficulty**
3. **Play the Game**



Introduction

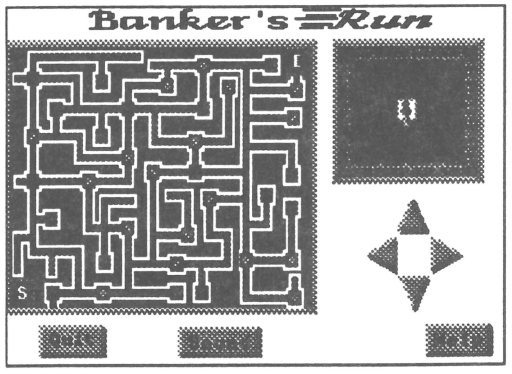
The bank is looking for a new president. The user can prove his or her mathematical ability by finding the way through the corridors of the bank's giant underground vault, which is only possible by solving math problems along the way. At the end of this maze is the bank's money room; reaching this point is the object of this educational game. The halls of the maze are blocked in many places by special security barriers, or "math locks," which consist of randomly generated multiplication and division problems.



Instructions

In order to win the game, the user must travel all the way from the start, marked with an "S," to the end, which is marked with an "E." Students must move through the vault by clicking on one of the four gray directional arrows with the mouse. The little character on the screen (representing the user) will then run in that direction, if an opening exists. The large box to the left of

Program Description



the screen is the main map of the bank vault. The user's position in the vault is represented by a flashing blue square. Selecting *Change Difficulty*, either from *Help*, or at the beginning of the game, allows the user to choose how much of the vault is shown on the main map. The small box in the upper right portion of the screen shows a closeup view of the exact square of the maze the user is in at that point.

Change Difficulty - Math Locks

Hard: Questions must be answered each time a room is entered, even if the user has been in that room before.
Easy: The doors to a room remain unlocked once a question has been answered correctly.

Change Difficulty – Maze Visibility

Easy: The entire vault is shown.
Normal: A section of the vault is shown only after the user has visited it.
Hard: The main map is blank.

Math Locks

At various places in the vault, you will run into *Math Locks*. These are shown as colored squares on the main map and as larger squares in the small map. When the user enters a room, he or she must solve a math problem to go farther. Both the questions and the layout of the maze are randomly generated, changing each time the section is chosen. Users have on-screen help enabling them to change the difficulty at all times. As in all sections, *Sound* and *Quit* buttons are also available.

Teaching Strategies

- Have the entire class participate in designing other math games that will enable students to practice their skills in a way that is more challenging and fun than routine drills in a workbook. If your students enjoy and respond well to a more competetive exercise, begin with a simple math game. Divide the class into teams, and line up chairs on either side of the classroom. Instruct the first member of each team to approach the blackboard and take chalk in hand. Read a math problem aloud. Allow students to write it down and solve it as quickly as they can. The first student to arrive at the correct answer wins a point for their team. If the student who completes the problem first is incorrect, allow the student from the opposing team to try to answer that problem correctly. If they are both incorrect, give them the correct answer, demonstrating the procedure on the board, and do not award a point to either team. The team with the most points at the end of the class period wins.

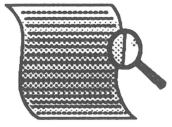
- Have children practice solving math problems in both a vertical and horizontal format, if they are ready to do so. Progressing from the level of **Talking Multiplication and Division**, go on to long division or multiplication problems with two or three-digit factors.

- As a homework project, ask your students to design their own math puzzles, word problems, math game, or quiz. Allow them to choose whichever type of math exercise they wish, and ask them to include a separate answer sheet. Have students exchange their assignments the next day, then display the results. Be sure to reward all students for their creative efforts.

- Have a class discussion about multiplication and division. Ask students why mastering these basic math skills is important. Give them examples of everyday situations in which it would profit them to know these operations, and ask them if they can describe a situation in which they would lose something if they did not have this knowledge.

Programmer**.....Richard E. Dye**

Artist**.....Dawn Joell**



Editor**.....Kathryn Madsen**

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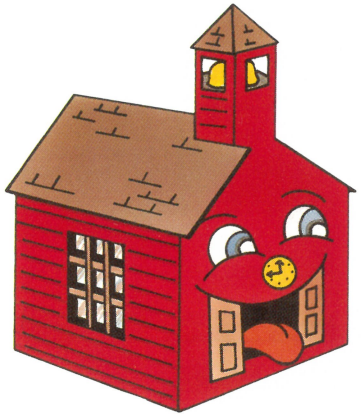

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